PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	The association between procrastination, white-collar work and obesity in Japanese male workers: a cross-sectional study
AUTHORS	Narisada, A; Suzuki, Kohta

VERSION 1 - REVIEW

REVIEWER	Luenda Charles National Institute for Occupational Safety and Health
REVIEW RETURNED	27-Feb-2019

GENERAL COMMENTS	The authors conducted a cross-sectional study to investigate the associations of procrastination, work environment, and obesity-related factors among 885 Japanese male workers. Overall, the manuscript is well-written, well-organized, and interesting. Changes need to be made to the interpretation of some of the results. Specific comments are given below. Abstract • The associations for procrastination with BMI and adult weight change were not statistically significant among white-collar workers; the 95% CI includes 1. The associations were only significant for procrastination with AWG10 and MetS. This difference should be noted in the abstract. • Page 2, line 9: Add the units kg/m2 after BMI ≥25. Introduction • Page 5, line 8: Change 'have showed' to 'have shown'. • Page 6, line 4: What is 'que-triggered'? Methods • Overall, this section is detailed and well-written. • Page 8, line 10: The international definition of obesity is BMI ≥30 kg/m2. Overweight is defined as BMI ≥25 kg/m2. Why is your definition of obesity different from what is generally accepted? • Page 8, line 15: Metabolic syndrome is usually defined at the presence of three or more of five factors. Explain why your definition is different (i.e., two instead of three). • Page 10: Under 'Statistical analysis', state how you chose confounders and risk factors for the models. Results

	• Page 12, 2nd paragraph: These results among white-collar workers are not statistically significant. If 1 is included in the 95% CI, the result is not significant. Please revise and address these errors in the Abstract, Results, and Discussion sections. • Page 12, line 18: Since this is a cross-sectional study, the word 'risk' is inappropriate. It is more appropriate to say "..about a two-fold greater odds compared with…". Please remove 'risk' from other sections of this manuscript; 'risk' is used in longitudinal study designs. • Page 13, line 2: Add 'workers' after 'blue-collar'. Discussion Page 16, lines 5-7: State why these variables were not included in your analyses. Tables All tables are clear and are presented very well.

REVIEWER	HIMA GUPTA Indira Institute of Management, Pune 85/5-A, Tapasaya Building, New Mumbai Pune Highway Tathawade, Pune 411033
REVIEW RETURNED	26-Apr-2019

GENERAL COMMENTS	1. The objectives considered and the conclusion given in the paper are not well connected. 2. More elaboration of the Table values are needed. 3. The Techniques used for analysis like Multi variable regression and logistics regression need to be explained clearly in the context of the data set taken here. 4. the non response rate is not mentioned here. 5. The questionnaire used in the study need to be attached.

REVIEWER	Melissa Crane Rush University Medical Center
REVIEW RETURNED	07-May-2019

GENERAL COMMENTS	This manuscript uses data from employee health screenings to investigate the relationships between procrastination and weight status/change in adulthood while considering occupational class as a modifier of the relationship. Overall, the research question is novel, well supported, the analyses are thorough, and the discussion is well reasoned, if slightly overstated. Though the results are compelling, reliance on a one-item measure of procrastination in a cross-sectional analysis limit the appropriateness of calling for intervention/supervision of employees based on this analysis. Softening the wording of the discussion section somewhat would address this concern. I have suggestions for revisions to the manuscript, that if made, will help to clarify the study and manuscript to enhance potential utility to readers. Specific concerns are listed below: Abstract:

	• Include in the abstract that procrastination was assessed via a one-item measure.
	• Soften the wording of conclusion to include that this is a cross-sectional relationship.
	• Bullets 2 and 4 of strengths and limitations are awkwardly worded.
	Introduction
	• Page 5: descriptions of smoking seem out of place and could be removed to enhance clarity.
	• Page 6: Reword to clarify that this study does not assess work environment and instead focuses only on occupational class.
	• Typo on page 6, line 4: "que-triggered"
	Methods
	• What percentage of the employees completed the health screening? Did this vary by occupation class?
	• Page 8 Line 10: Include a statement that you are using the Japanese-specific criteria for obesity given that readers will more often expect the obesity cutoff of 30 kg/m2
	• Page 9 Line 2: Typo: "personnel" not personal.
	• Please provide a clearer definition of "shift work".
	• The description of the alcohol measure is somewhat confusing as presented. Please include the "light" drinking category in Table 2 to aid understanding.
	• The physical activity variables were also unclear. How were these assessed? Further, in describing the variables, separating these into "Moderate leisure time PA (yes/no)" and reframing the "Daily Physical activity" as "Total physical activity including both leisure time physical activity and occupational activity" (I presume) will provide a clearer distinction between these variables.
	• Add a description of the analyses in the supplemental tables.
	Results
	• Tables 2 and 3 include typos in the title ("perticipants" and "math" for mass)
	• Consider removing Table 1 and including a description of the measure in the text instead.
	• There is no discussion of Supplemental Table 3 in the manuscript.
	Discussion
	• Considering both the cross-sectional analyses and the reliance on a one-item measure for the predictor, some of the
	• Do you have evidence that there were few differences in income between blue and white collar occupation classes in this company? If not, the statement that SES status may not differ between groups as this is likely an overstatement.

VERSION 1 – AUTHOR RESPONSE

Reply to Reviewer #1

We are grateful to the Reviewer #1 for taking time to provide useful comments. As indicated in the responses that follow we have considered all these comments in the revised version of our manuscript.

Comment 1: Page 2, line 9: Add the units kg/m2 after BMI ≥25.

Response: We thank for the reviewer's comment. We changed as below (page 2).

"Main outcome measures: Body mass index (BMI), adult weight change, obesity (BMI ≥ 25 kg/m2), adult weight gain over 10 kg (AWG10), and metabolic syndrome (MetS)."

Comment 2: Page 5, line 8: Change 'have showed' to 'have shown'.

Response: We thank for the reviewer's comment. We changed as below (page 5).

"Previous studies have shown that shift work, sedentary work, and long working hours are associated with obesity-related behaviors and excess weight gain [22 – 24]."

Comment 3: Page 6, line 4: What is 'que-triggered'?

Response: We thank for the reviewer's comment. We changed as below (page 6).

"…, we focused on how often workers make cue-triggered decisions during work."

Comment 4:

The associations for procrastination with BMI and adult weight change were not statistically significant among white-collar workers; the 95% CI includes 1. The associations were only significant for procrastination with AWG10 and MetS. This difference should be noted in the abstract.

Page 12, 2nd paragraph: These results among white-collar workers are not statistically significant. If 1 is included in the 95% CI, the result is not significant. Please revise and address these errors in the Abstract, Results, and Discussion sections.

Response: We much appreciate the Reviewer's comments. In this study, we used multivariable linear, not logistic, regression models to assess the associations of procrastination with BMI and adult weight change, and the associations were statistically significant; the 95% CI did not include 0.

Comment 5:

 Page 8, line 10: The international definition of obesity is BMI ≥30 kg/m2. Overweight is defined as BMI ≥25 kg/m2. Why is your definition of obesity different from what is generally accepted?

Page 8, line 15: Metabolic syndrome is usually defined at the presence of three or more of five factors. Explain why your definition is different (i.e., two instead of three).

Response: We appreciate the Reviewers' comment. Because participants in this study are Japanese male workers, this study used Japanese-specific criteria for obesity and metabolic syndrome. Thus, we changed in Methods and Discussion sections as below (page 8 and page 18).

Page 8: "Using the Japanese-specific criteria, obesity was defined as BMI over 25 kg/m2 [32]."

Page 18: "Finally, participants in our study were employees of a manufacturing company and its associate companies in Japan. Obesity and Mets were assessed using Japanese-specific criteria. Therefore, our results may   contain healthy worker bias and will be difficult to be generalized to all workers in Japanese companies and other countries."

Comment 5: Page 10: Under 'Statistical analysis', state how you chose confounders and risk factors for the models.

Response: We thank for the Reviewers' comment. In this study, we performed three-step analysis. First was the crude model. Second was adjusted for age, education, and working conditions which were considered as confounding factors. Third was controlled for lifestyle factors such as physical activity, smoking status, and alcohol consumption, in order to exclude the possibility that procrastination was associated the obesity through lifestyle other than work. Thus, we changed as below (page 10).

"We performed three-step analysis in addition to the crude model: Models 1, 3 ,5, and 7 were adjusted for age, education, and working conditions, which were considered as confounding factors. Models 2, 4, 6, and 8 additionally controlled for physical activity, smoking status, and alcohol consumption in order to exclude the possibility that procrastination was associated the obesity through lifestyle other than work."

Comment 6: Page 12, line 18: Since this is a cross-sectional study, the word 'risk' is inappropriate. It is more appropriate to say "..about a two-fold greater odds compared with…". Please remove 'risk' from other sections of this manuscript; 'risk' is used in longitudinal study designs.

Response: We much appreciate your frank comments and practical advice. In accordance with the Reviewer's comment, we changed as below (page 12). And we remove the word 'risk' from other sections.

"For AWG10 and MetS among white-collar workers, high procrastination had about a twofold greater odds compared with no procrastination,…"

Comment 7: Page 13, line 2: Add 'workers' after 'blue-collar'.

Response: We thank for the reviewer's comment. We changed as below (page 13).

"Furthermore, among blue-collar workers, procrastination tended to show a decreased odds of MetS (OR: 0.40, 95% CI: 0.15–1.06) in the fully adjusted model."

Comment 8: Page 16, lines 5-7: State why these variables were not included in your analyses.

Response: We appreciate the Reviewers' comment. In this study, there was no data about household items, such as household income and marital and parental status, and so our analyses did not include them. Therefore, we added the sentence at limitation section as below (page 16).

"Although previous studies have showed that these variables are associated with obesity [41, 42]. However, our analyses did not include them because we did not conduct family status and household items."

Reply to Reviewer #2

We thank the Reviewer #2 for providing constructive comments regarding the improvement of the original manuscript.

Comment 1: The objectives considered and the conclusion given in the paper are not well connected.

Response: We much appreciate the reviewer's comments. The objective of this study is to investigate the associations among procrastination (time inconsistency), work environment, and obesity-related factors in Japanese male workers. However, we focused only on occupational class, not assessed how workers act during work directly because that was very difficult to assess. Thus, we changed the discussion section as below (page.15).

"Our results showed that procrastination is a powerful contributing factor to obesity among such white-collar workers, although our study did not assess work environment directly."

Comment 2: More elaboration of the Table values are needed.

Response: In accordance with the comments of the Reviewer #2 and the Reviewer #3, we include the "light" drinking category Table 2 (page 28) and changed the covariates section as below (page 9).

Comment 3: The Techniques used for analysis like Multi variable regression and logistics regression need to be explained clearly in the context of the data set taken here.

Response: We thank for the Reviewers' comment. In this study, we performed three-step analysis. First was the crude model. Second was adjusted for age, education, and working conditions which were considered as confounding factors. Third was controlled for lifestyle factors such as physical activity, smoking status, and alcohol consumption, in order to exclude the possibility that procrastination was associated the obesity through lifestyle other than work. Thus, we changed as below (page 10).

We performed three-step analysis in addition to the crude model: Models 1, 3 ,5, and 7 were adjusted for age, education, and working conditions, which were considered as confounding factors. Models 2, 4, 6, and 8 additionally controlled for physical activity, smoking status, and alcohol consumption in order to exclude the possibility that procrastination was associated the obesity through lifestyle other than work.

Comment 4: the non response rate is not mentioned here.

Response: In accordance with the Reviewer's comment, we changed as below (page 11).

"A total of 885 employees who underwent health checkups in 2015 were enrolled in this study. We excluded one worker (0.1%) who did not complete the health checkup, and 89 workers (10.1%) who did not complete the questionnaires."

Comment 5: The questionnaire used in the study need to be attached.

Response: We thank for the reviewer's comment. Table 1 shows the questionnaire about procrastination ("Homework in Schooldays").

Reply to Reviewer #3

We wish to express our appreciation to the Reviewer #3 for your insightful comments, which have helped us significantly improve the paper.

Comment 1: Include in the abstract that procrastination was assessed via a one-item measure.

Response: In accordance with the Reviewer's comment, we changed the Abstract as below (page.2).

"Multivariable linear and logistic regression analyses were performed to assess the associations of procrastination assessed by using one questionnaire and white- and blue-collar work with obesity-related factors."

Comment 2: Soften the wording of conclusion to include that this is a cross-sectional relationship.

Response: We much appreciate the reviewer's comments and advice. In accordance with the Reviewer's comment, we changed the Abstract as below (page 2).

"Procrastination and white-collar work might have a joint effect on weight gain during adulthood and consequential obesity."

Comment 3: Bullets 2 and 4 of strengths and limitations are awkwardly worded.

Response: In accordance with the Reviewer's comment, we changed the bullets 2 and 4 of strengths and limitations as below (page.2).

"This is the first study indicating the epidemiological relationship between time preference and MetS in male white-collar workers."

"Using one questionnaire addressing homework when workers were in school, which participants were asked to recall, to assess procrastination, our results may be affected by social disability bias."

Comment 4: Page 5: descriptions of smoking seem out of place and could be removed to enhance clarity.

Response: We much appreciate the reviewer's comments and advice. In accordance with the Reviewer's comment, we changed Introduction section as below (page 5).

"(Indeed, in contrast to obesity, the prevalence of smokers, which is also related to time inconsistency [27], has declined during recent decades in Japan [28].)"

Comment 5: Page 6: Reword to clarify that this study does not assess work environment and instead focuses only on occupational class.

Response: We thank for the reviewer's comment. In this study, we focused only on occupational class, not assessed how workers act during work directly because that was very difficult to assess. Thus, we changed the discussion section as below (p.15).

"Our results showed that procrastination is a powerful contributing factor to obesity among such white-collar workers, although our study did not assess work environment directly."

Comment 6: Typo on page 6, line 4: "que-triggered.

Response: We thank for the reviewer's comment. We changed as below (page 6).

"…, we focused on how often workers make cue-triggered decisions during work."

Comment 7: What percentage of the employees completed the health screening? Did this vary by occupation class?

Response: We much appreciate the reviewer's comments. Among 885 employees, one worker (white-collar worker) did not complete the health checkup completed the health screening (99.9%). There was no difference of health examination rate between white- and blue-collar workers. We changed as below (page 11).

"A total of 885 employees who underwent health checkups in 2015 were enrolled in this study. We excluded one worker (0.1%) who did not complete the health checkup,…"

Comment 8: Page 8 Line 10: Include a statement that you are using the Japanese-specific criteria for obesity given that readers will more often expect the obesity cutoff of 30 kg/m2

Response: We appreciate the Reviewers' comment. In accordance with the Reviewer's comment, we changed the Abstract as below (p.8).

"Using the Japanese-specific criteria, obesity was defined as BMI over 25 kg/m2 [32]."

Comment 9: Page 9 Line 2: Typo: "personnel" not personal.

Response: We thank for the reviewer's comment. We changed as below (page 9).

"Whether participants were white- or blue-collar workers was assessed according to the substance of their work, which was obtained from their personnel file."

Comment 10: Please provide a clearer definition of "shift work"

Response: In accordance with the Reviewer's comment, we changed the bullets 2 and 4 of strengths and limitations as below (p.9).

"Shift work (night shift work) was assessed using information of the health checkups for shift workers."

Comment 11: The description of the alcohol measure is somewhat confusing as presented. Please include the "light" drinking category in Table 2 to aid understanding.

Response: We much appreciate the reviewer's comments and practical advice. In accordance with the Reviewer's comment, we include the "light" drinking category Table 2 (page 28) and changed the covariates section as below (page 9).

"Alcohol consumption was classified as heavy drinker (consuming 300 g or more of alcohol per week), moderate drinker (consuming 150–300 g of alcohol per week) or light drinker (consuming 1–150 g of alcohol per week)."

Comment 12: The physical activity variables were also unclear. How were these assessed? Further, in describing the variables, separating these into "Moderate leisure time PA (yes/no)" and reframing the "Daily Physical activity" as "Total physical activity including both leisure time physical activity and occupational activity" (I presume) will provide a clearer distinction between these variables.

Response: We thank for the reviewer's insightful comment and advice. In accordance with the Reviewer's advice, we changed the covariance section as below (page 10).

"Leisure time physical activity was defined as exercising in free time over 30 minutes twice or more per week, and daily physical activity was defined as physical activity in daily life equal to more than an hour of walking."

Comment 13: Tables 2 and 3 include typos in the title ("perticipants" and "math" for mass).

Response: We thank for the reviewer's comment. We changed the title of Table 2 (page 28) and 3 (page 29).

Comment 14:

Add a description of the analyses in the supplemental tables.

There is no discussion of Supplemental Table 3 in the manuscript.

Response: We much appreciate the reviewer's comments. In accordance with the Reviewer's comment, we add these sentence in Result section as below (page 13-14).

"Workers with high procrastination tended to engage in less daily physical activity and to skip breakfast (Table 2). When we estimated the effects of procrastination, controlling for all unhealthy habits, the findings remained significant (Supplemental Table 3)."

Comment 15: Do you have evidence that there were few differences in income between blue and white collar occupation classes in this company? If not, the statement that SES status may not differ between groups as this is likely an overstatement.

Response: We thank the Reviewer for this insightful comment. We don't have clear evidence that there were few differences in income between blue and white collar occupation classes in this company. Thus, in accordance with the Reviewer's comment, we changed the discussion section as below (page 16).

From

"However, our participants were regular employees in the same company; hence, socioeconomic status may not differ greatly among them."

To

"Further study is needed to evaluate the relationships between procrastination, work environment and obesity controlling for socioeconomic status."

VERSION 2 – REVIEW

REVIEWER	Luenda Charles National Institute for Occupational Safety and Health, USA
REVIEW RETURNED	11-Jun-2019

GENERAL COMMENTS	The authors have addressed most of the previous comments and suggestions and as a result, the manuscript has improved. However, they need to address additional factors before the manuscript could be considered acceptable for publication.
	Overall: The paper needs further review by someone who is a native English language speaker. There are a few spelling and grammatical errors and numerous awkwardly written sentences that need to be corrected. For example, the last sentence of the Introduction could be re-written as "We hypothesize that occupational status (i.e., white- or blue-collar) might be a significant effect modifier in the associations between time inconsistency and obesity-related factors.
	Abstract: The number of participants in the study is 795, not 885.
	Introduction: p. 6, line 5. What do you mean by "cue-triggered"?
	Results: p. 12, line 19: Correct spelling is "linear" not "liner".
	Results: p. 13, lines 2-4: The associations among white-collar workers were not significant because the 95% CIs includes 1. This interpretation of the results is not correct. Also, the authors should not use the word 'risk' because this is a cross-sectional study. 'Risk' is only used with longitudinal study designs.
	Discussion: p. 14, line 18: I think the authors meant to say "Evidence has indicated that LACK OF self-regulation...."
	p. 15, line 7: Were the associations positive or negative?
	p. 15, lines 12-14: This sentence is not clear.
	p. 15, line 19: The sentence "Our results showed that procrastination is a powerful...." is not correct because the results were not statistically significant.

	p. 16, line 9: What do you mean by 'adverse skill'?
	p. 16, line 18: It would be helpful to the reader to state why your analyses did not included the mentioned variables.
	p. 17, lines 7-9: This sentence is not clear.

REVIEWER	Melissa Crane Rush University Medical Center United States
REVIEW RETURNED	19-Jun-2019

GENERAL COMMENTS	I have a few remaining concerns that, if addressed, will clarify the intent and findings of the manuscript. The manuscript would benefit from editing by a native English speaker. Numerous misspellings and grammatical errors are present in the article, some are described below. • Abstract line 11: revise to say "assessed by using a one-item questionnaire" • The final limitation bullet is still confusing. Suggest instead "Procrastination was assessed using a one-item question which asked participants to recall their homework habits from when they were in school which may be affected by social desirability bias." (Note- "desirability" not "disability"). • Page 5: The insertion related to smoking continues to feel out of place. Is the suggestion that prevalence of smoking has decreased due to changing cues related to smoking? • Page 6: Please state in line 3 that the purpose of the study is to assess relationships by "occupational class" which is a proxy for work environments to ensure clarity that this is what is being studied. • Results Page 13, Line 4: There was no significant relationship between procrastination and obesity prevalence in white collar workers ($p = 0.257$). Remove this statistic from this sentence. • Page 13, Line 5: None of these were significantly greater in blue collar workers. Replace this sentence with a statement to this effect. • Table 2: "Weight" at the age of 20 is misspelled. • Table 2: "College" is misspelled. • Table 2: "Smoking" status is misspelled. • Table 2: Obesity is misspelled repeatedly. • Table 2: There is an error in the first column of alcohol habits. Only 79 participants are listed by category of drinking when it should be 82

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VERSION 2 – AUTHOR RESPONSE

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Reply to Reviewer #1

We thank the Reviewer #1 for providing constructive comments regarding the improvement of the manuscript.

Comment 1: ...the last sentence of the Introduction could be re-written as "We hypothesize that occupational status (i.e., white- or blue-collar) might be a significant effect modifier in the associations between time inconsistency and obesity-related factors.

Response: We thank for the reviewer's comment. We changed as below (page 6).

"Thus, we hypothesize that occupational status (i.e., white- or blue-collar) might be a significant effect modifier in the associations between time inconsistency and obesity-related factors."

Comment 2: Abstract: The number of participants in the study is 795, not 885.

Response: We thank for the reviewer's comment. We changed as below (page 2).

"Participants: 795 full-time male workers in a Japanese electric company, …"

Comment 3: Introduction: p. 6, line 5. What do you mean by "cue-triggered"?

Response: We thank for the reviewer's comment. We added as below (page 6).

"…, we focused on how often workers make cue-triggered decisions during work (impulsive unhealthy behaviors influenced by work environment).."

Comment 4: Results: p. 12, line 19: Correct spelling is "linear" not "liner".

Response: We thank for the reviewer's comment. We changed as below (page 13).

"The associations of procrastination with BMI and adult weight change using multivariate linear regression models are shown in Table 3."

Comment 5: Results: p. 13, lines 2-4: The associations among white-collar workers were not significant because the 95% CIs includes 1. This interpretation of the results is not correct. Also, the authors should not use the word 'risk' because this is a cross-sectional study. 'Risk' is only used with longitudinal study designs.

Response: We much thank for constructive comment. According to the reviewer's comment, we changed as below (page 13).

(From)

Among the total, white- and blue-collar workers, high procrastination showed no significant risk of obesity. For AWG10 and MetS among white-collar workers, high procrastination had about a twofold greater odds compared with no procrastination, even after controlling for related covariates (OR: 1.85, 95% CI: 1.04–3.29 for AWG10; OR: 2.29 95% CI: 1.18–4.44 for MetS). However, such positive associations were not observed among all workers and blue-collar workers.

(To)

For obesity among all categories of workers (the total, white- and blue-collar workers), high procrastination showed no significant associations of obesity. For AWG10 and MetS among white-collar workers, high procrastination had about a twofold greater odds of AWG10 and MetS compared with no procrastination, even after controlling for related covariates (OR: 1.85, 95% CI: 1.04–3.29 for AWG10; OR: 2.29 95% CI: 1.18–4.44 for MetS). However, such positive associations of high procrastination with AWG10 and MetS were not observed among all workers and blue-collar workers.

Comment 6: Discussion: p. 14, line 18: I think the authors meant to say "Evidence has indicated that LACK OF self-regulation...."

Response: We are grateful to the reviewer for the insightful comment. According to the reviewer's comment, we changed as below (page 15).

(From)

Our results suggest the interactive effects of procrastination and workplace factors, which might support this hypothesis.

(To)

Our study evaluating the interactive effects of procrastination and workplace factors is line with this hypothesis.

Comment 7: p. 15, line 7: Were the associations positive or negative?

Response: We thank for the reviewer's comment. We changed as below (page 13).

"…, the findings remained significant positive (Supplemental Table 4)."

Comment 8: p. 15, lines 12-14: This sentence is not clear.

Response: We thank for constructive comment. We changed as below (page 15-16).

(From)

"White-collar workers, who generally have not only longer sedentary time at work but can also make more personal decisions about when to take a break, snack, and about doing physical activity during work, might be more influenced by environmental cues."

(To)

"White-collar workers, who generally have not only longer sedentary time at work but can also make more personal decisions about when to take a break, snack, and about doing physical activity during work, might be more influenced by obesogenic work environment (environmental cues)."

Comment 9: p. 15, line 19: The sentence "Our results showed that procrastination is a powerful...." is not correct because the results were not statistically significant.

Response: We thank for constructive comment. We changed as below (page 16).

(From)

"Our results showed that procrastination is a powerful contributing factor to obesity among such white-collar workers,…"

(To)

"Our results showed that procrastination is a powerful contributing factor to adult weight gain and MetS among such white-collar workers,…"

Comment 10: p. 16, line 9: What do you mean by 'adverse skill'?

Response: We thank for the reviewer's comment. We added as below (page 16).

"…procrastination (one of adverse socioemotional skills[12, 30])"

Comment 11: p. 16, line 18: It would be helpful to the reader to state why your analyses did not included the mentioned variables.

Response: We thank for constructive comment. We changed as below (page 17).

(From)

"Although previous studies have showed that these variables are associated with obesity [41, 42], our analyses did not include them."

(To)

"Previous studies have showed that these variables are associated with obesity [41, 42]. However, our analyses did not include them, because our study did not survey them."

Comment 12: p. 17, lines 7-9: This sentence is not clear.

Response: We thank for constructive comment. We changed as below (page 17).

(From)

"To prevent these diseases and harmful results, male white-collar workers with high procrastination levels should be monitored more carefully."

(To)

"To prevent these diseases and harmful results, male white-collar workers with high procrastination levels should be monitored more carefully for undesirable adult weight gain (i.e., weight gain over 3 kg in one year)."

Reply to Reviewer #3

We are grateful to the Reviewer #3 for taking time to provide useful comments. As indicated in the responses that follow we have considered all these comments in the revised version of our manuscript.

Comment 1: Abstract line 11: revise to say "assessed by using a one-item questionnaire"

Response: We thank for the reviewer's comment. We changed as below (page 2)

"… procrastination assessed by using one-item questionnaire"

Comment 2: The final limitation bullet is still confusing. Suggest instead "Procrastination was assessed using a one-item question which asked participants to recall their homework habits from when they were in school which may be affected by social desirability bias." (Note- "desirability" not "disability").

Response: We thank for constructive comment. We changed as below (page 3).

"Procrastination was assessed using a one-item question which asked participants to recall their homework habits from when they were in school which may be affected by social desirability bias."

Comment 3: Page 5: The insertion related to smoking continues to feel out of place. Is the suggestion that prevalence of smoking has decreased due to changing cues related to smoking?

Response: We are grateful to the reviewer for the insightful comment. According to the reviewer's comment, we changed the insertion as below (page 5).

(From)

"(Indeed, in contrast to obesity, the prevalence of smokers, which is also related to time inconsistency [27], has declined during recent decades in Japan [28].)"

(To)

"(Indeed, in Japan, in contrast to obesity, the prevalence of smokers, which is also related to time inconsistency [27], has declined along with stricter tobacco control and smoking environment [28].)"

Comment 4: Page 6: Please state in line 3 that the purpose of the study is to assess relationships by "occupational class" which is a proxy for work environments to ensure clarity that this is what is being studied.

Response: We thank for constructive comment. We changed as below (page 6).

"In this study, we assess relationships between time inconsistency and obesity-related factors by "occupational class" which is a proxy for work environments."

Comment 5,6: Results Page 13, Line 4: There was no significant relationship between procrastination and obesity prevalence in white collar workers (p = 0.257). Remove this statistic from this sentence.

Page 13, Line 5: None of these were significantly greater in blue collar workers. Replace this sentence with a statement to this effect.

Response: We much thank for constructive comment. According to the reviewer's comment, we changed as below (page 13).

(From)

Among the total, white- and blue-collar workers, high procrastination showed no significant risk of obesity. For AWG10 and MetS among white-collar workers, high procrastination had about a twofold greater odds compared with no procrastination, even after controlling for related covariates (OR: 1.85, 95% CI: 1.04–3.29 for AWG10; OR: 2.29 95% CI: 1.18–4.44 for MetS). However, such positive associations were not observed among all workers and blue-collar workers.

(To)

For obesity among all categories of workers (the total, white- and blue-collar workers), high procrastination showed no significant associations of obesity. For AWG10 and MetS among white-collar workers, high procrastination had about a twofold greater odds of AWG10 and MetS compared with no procrastination, even after controlling for related covariates (OR: 1.85, 95% CI: 1.04–3.29 for AWG10; OR: 2.29 95% CI: 1.18–4.44 for MetS). However, such positive associations of high procrastination with AWG10 and MetS were not observed among all workers and blue-collar workers.

Comment 7-11: Table 2: "Weight" at the age of 20 is misspelled.

Table 2: "College" is misspelled.

Table 2: "Smoking" status is misspelled.

Table 2: Obesity is misspelled repeatedly.

Table 2: There is an error in the first column of alcohol habits. Only 79 participants are listed by category of drinking when it should be 82

Response: We thank for the reviewer's comment. We changed Table 2 (page 28, 29)